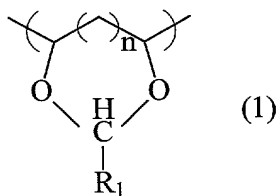


Claims

1. A negative aqueous photoresist composition, comprising:

a) a polymer comprising at least one unit with structure (1)



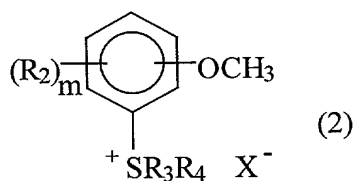
where R_1 is hydrogen or (C_1-C_4) alkyl and $n = 1-4$;

b) a water-soluble photoactive compound;

c) a crosslinking agent; and,

d) a solvent composition.

2. The photoresist composition according to claim 1, where the photoactive compound has structure (2),



where,

R_2 is hydrogen, alkyl, $-O(\text{alkyl})$, $-(\text{alkyl})OH$, hydroxyphenyl or multihydroxyphenyl,

R_3 and R_4 are independently (C_1-C_4) alkyl,

$m = 1-3$, and,

X^- is an anion.

3. The photoresist composition according to claim 1, where solvent composition is water or a mixture of water and a (C_1-C_4) alkyl alcohol.

4. The photoresist composition according to claim 1, where the polymer contains additional nonaromatic units.

5. The photoresist composition according to claim 4, where the nonaromatic units are selected from a group consisting of ethylenic alcohol, ethylenic pyrrolidone, ethylenic acetate, and methylene alcohol.

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6. The photoresist composition according to claim 1, where the polymer contains at least 10 mole% of the unit of structure 1.

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7. The photoresist composition according to claim 1, where $n = 1$ and R_1 is selected from methyl, ethyl, propyl and butyl.

8. The photoresist composition according to claim 2, where the photoactive compound is (4-methoxyphenyl)dimethylsulfonium trifluoromethanesulfonate.

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9. The photoresist composition according to claim 1, where the crosslinker is selected from melamine resins, urea resins and glycolurils.

10. The photoresist composition according to claim 3, where the alcohol is isopropanol.

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11. A process for imaging a negative photoresist comprising the steps of:
a) forming on a substrate a photoresist coating from the photoresist composition of claim 1;
b) image-wise exposing the photoresist coating;
c) postexposure baking the photoresist coating; and
d) developing the photoresist coating with a developer.

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12. The process of claim 11, where the image-wise exposure wavelength is below 260nm.

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13. The process according to claim 11, where the developer is selected from water, a mixture of water and a (C_1 - C_4) alkyl alcohol, mixture of water and surfactant, and an aqueous base solution.

14. The process according to claim 13, where the alcohol is isopropanol.